

Translation

PATENT COOPERATION TREATY

PCT/EP2003/009513



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0000053897	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/009513	International filing date (day/month/year) 28 August 2003 (28.08.2003)	Priority date (day/month/year) 04 September 2002 (04.09.2002)
International Patent Classification (IPC) or national classification and IPC C07C 213/00		
Applicant BASE AKTIENGESELLSCHAFT		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>3</u> sheets.</p>	
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>	

Date of submission of the demand 23 March 2004 (23.03.2004)	Date of completion of this report 14 September 2004 (14.09.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/009513

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages _____, 1-9, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, 1-10, filed with the letter of _____ 13.08.04
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP 03/09513

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Claims

1-10

6

YES

Claims

NO

Inventive step (IS)

Claims

1-10

YES

Claims

NO

Industrial applicability (IA)

Claims

1-10

YES

Claims

NO

2. Citations and explanations

Reference is made to the following documents:

D1: WO 99 38824 A cited in the application

D2: WO 99 38613 A cited in the application

D3: WO 99 38838 A cited in the application

D4: WO 98 52891 A cited in the application

D5: EP-A-0 589 168

D6: DE 27 15 666 A

D7: EP-A-1 112 776

1. Novelty

Documents D1 to D3 also describe methods for producing optically active 2-amino- or 2-hydroxy-1-alkanols by hydrogenating suitable optically active 2-amino- or 2-hydroxycarboxylic acids, or acid derivatives thereof. The subject matter of the application differs from the prior art in D1 to D3 by the nature of the catalyst (Pd-Re or Pt-Re instead of Ru-Re in D1 to D3).

Documents D4 to D7 describe methods for producing non-optically active alcohol compounds by catalytic hydrogenation of suitable carboxylic acids in the

presence of palladium and rhenium (D5, D6, D7) or platinum and rhenium (D4, D6).

The subject matter of the application can therefore be considered novel.

2. Inventive step

2.1 The application shows that the invention addresses the following problem (see the description, page 2, lines 15 to 21): developing an improved method (high catalyst activity and high levels of enantiomeric purity) for producing optically active 2-amino-, 2-chloro-, 2-hydroxy or 2-alkoxy-1-alkanols.

2.2 D1 to D3 are relevant to the assessment of inventive step and are regarded as the closest prior art. Those documents also disclose methods for producing optically active 2-amino- or 2-hydroxy-1-alkanols with high levels of enantiomeric purity and therefore solve the problem addressed by the application.

2.3 The problem is therefore considered to be the development of an additional improved method for producing optically active 2-amino-, 2-chloro-, 2-hydroxy or 2-alkoxy-1-alkanols.

2.4 The examples and comparative examples (see, in particular, pages 8 and 9) show that the above problem (point 2.3) was solved using the technical method steps specified in claim 1.

2.5 In view of the prior art in D1 to D3 and D4 to D7, the solution to the problem as per claims 1 to 10 is

considered surprising.

The prior art in D1 to D3 indicates to a person skilled in the art that the use of a ruthenium/rhenium catalyst for producing optically active 2-amino- or 2-hydroxy-1-alkanols by hydrogenating suitable optically active 2-amino- or 2-hydroxycarboxylic acids also leads to high levels of enantiomeric purity.

The prior art in D1 to D3 and D4 to D7 does not, however, suggest to a person skilled in the art that the ruthenium be replaced by palladium or platinum when wishing to develop an additional effective catalyst for producing optically active 2-amino-, 2-chloro-, 2-hydroxy or 2-alkoxy-1-alkanols from suitable optically active 2-amino- or 2-hydroxycarboxylic acids, since the methods as per D4 to D7 do **not** lead to the production of optically active alcohol compounds.

The subject matter of the application thus meets the requirement of PCT Article 33(3).